



Research on the Accuracy of Elo Ratings

Tommy Schupp, Andrew Ricupito. Data-412

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This is a research type analysis. In the National Football League (NFL), like in Chess or other games, teams are given an Elo rating. Elo ratings are based on the quality of that team's previous wins and losses. Using the NFL Elo and past season records, we want to find who the best NFL teams and quarterbacks are since 2002, the most recent NFL expansion?

To answer this question, we propose the use of the nfl-elo dataset coming from FiveThirtyEight. This dataset can be found [here](#).  The dataset contains approximately 17,000 games from 1920 to today. Each game has approximately 30 different variables associated with it. We will look at all games from the 2002 season, the last time the NFL was expanded, to last year's 2021 season.

 Proposed approach for the analysis: To find the best teams and quarterbacks (who played at least 10 games) since 2002, we want to look at 4 main categories: Elo, record, divisions, and average points per season.


Record: What teams have the best record over the last 20 years? What QB's have the best record over the last 20 years? Dplyr - Most wins Dplyr - Winning percentage Ggplot - Line graph of wins and percentage by team per year Ggplot - bar chart of top 5 qb win % Ggplot - bar chart of top 5 qb total wins

Highest average Elo: What teams have had the best Elo over the last 20 years? Ggplot - Pie chart of teams with highest average elo each year Ggplot - Line graph grouped by teams of Elo at all points over the last 20 years Dplyr- highest average Elo over the last 20 years

Average points per season: What teams have had the highest average points per season? What teams have allowed the lowest average points per season? What qbs have had the highest average points per season? Ggplot - Line chart of the total points per season of each team Dplyr - highest average points per season Ggplot - bar chart of top 5 avg points per season

Divisions: What divisions have the highest average team elo? What qb has dominated each division? Dplyr - average team elo by division Dplyr - highest avg qb elo per division Ggplot - bar chart of highest avg qb elo per division, with each team's best qb

Since we have similar schedules, we plan to do the majority of the work for this project together in real time. As such, work will be divided evenly as we complete each task of the project. Because we are only 2 people, we do not expect to have problems with splitting work fairly. We are both responsible for ensuring that all parts of the project are accurate and correct.

We will be collaborating on this project as frequently  as we need to. We expect this to be 1-2 times per week, but if the project requires more, then we are flexible to add more. As mentioned above, we have similar schedules, so we do not expect to struggle to find time to collaborate.

We have already completed data gathering. We will spend this week, 10/17-10/23, cleaning and tidying data. We will spend the next week, 10/24-10/30, conducting the analysis. We will spend the next two weeks, 10/31-11/13, producing the group report. We will spend the next week, 11/14-11/20, producing the presentation. We will spend the next week, 11/21-11/27, rehearsing the presentation 